

WHAT IS CLAIMED AS NEW AND DESIRED TO BE PROTECTED BY LETTERS
PATENT OF THE UNITED STATES OF AMERICA, IS:

1. A cargo air bag, comprising:

5 an inflatable bladder having an aperture defined
therein;

 a plurality of paper plies having a plurality of
apertures respectively defined therewithin and enveloping
said inflatable bladder such that said inflatable bladder is
10 disposed internally within said plurality of paper plies;

 a first closed side edge portion defined upon said
cargo air bag as a result of said plurality of paper plies
being folded over upon themselves along one side portion of
said plurality of paper plies;

15 means for closing end portions of said plurality of
paper plies so as to define a second closed end edge portion
upon said cargo air bag which cooperates with said first
closed side edge portion of said cargo air bag in defining a
corner region of said cargo air bag;

20 an inflation valve assembly comprising a flange
portion sealed to said inflatable bladder, and an externally
threaded tubular body member projecting outwardly through
said apertures defined within said inflatable bladder and
said plurality of paper plies so as to be fluidically con-
25 nectible to a source of pressurized air, said inflation valve
assembly being disposed within said corner region of said
cargo air bag such that said inflation valve assembly is par-
tially circumscribed upon two sides thereof by said first
closed side and second closed end edge portions of said cargo
30 air bag; and

connection means for connecting together said plurality of paper plies within the vicinity of said inflation valve assembly and for cooperating with said first closed side and second closed end edge portions of said cargo air bag for additionally circumscribing said inflation valve assembly such that portions of said plurality of paper plies, interposed between said inflation valve assembly and said first closed side and second closed end edge portions of said cargo air bag, and between said inflation valve assembly and said connection means, are maintained in a substantially flattened state so as to not to engage threaded portions of said externally threaded tubular body member of said inflation valve assembly and thereby not interfere with the threaded engagement of a closure cap upon said externally threaded tubular body member of said inflation valve assembly.

20 2. The cargo air bag as set forth in Claim 1, wherein:
said means for closing end portions of said plurality of paper plies comprises fabric means for covering said end portions of said plurality of paper plies, and stitching for sewing said fabric means onto said end portions of said plurality of paper plies.

30 3. The cargo air bag as set forth in Claim 1, wherein:
said connection means comprises a plurality of adhesive strips.

4. The cargo air bag as set forth in Claim 3, wherein:
 said plurality of adhesive strips comprises a pair
of adhesive strips.

5

5. The cargo air bag as set forth in Claim 4, wherein:
 said pair of adhesive strips extend inwardly from
 said first closed side and second closed end edge portions of
10 said cargo air bag so as to intersect each other and form a
corner region disposed diametrically opposite said corner re-
gion of said cargo air bag as defined by the intersection of
 said first closed side and second closed end edge portions of
 said cargo air bag.

15

6. The cargo air bag as set forth in Claim 5, wherein:
 said pair of adhesive strips are disposed perpen-
20 dicular to each other such that a first one of said pair of
adhesive strips is disposed parallel to said first closed
side edge portion of said cargo air bag while a second one of
 said pair of adhesive strips is disposed parallel to said
second closed end edge portion of said cargo air bag.

25

7. The cargo air bag as set forth in Claim 4, wherein:
 said pair of adhesive strips are disposed within
30 the immediate vicinity of said flange portion of said infla-
tion valve assembly.

8. The cargo air bag as set forth in Claim 4, wherein:
said pair of adhesive strips, together with said
first closed side and second closed end edge portions of said
cargo air bag, are disposed upon four sides of said inflation
5 valve assembly so as to define a substantially square-shaped
closure pattern surrounding said inflation valve assembly.

~
10 9. A cargo air bag including an inflatable bladder having an
aperture defined therein; a plurality of paper plies having a
plurality of apertures respectively defined therewithin and
enveloping said inflatable bladder such that said inflatable
bladder is disposed internally within said plurality of paper
15 plies; a first closed side edge portion defined upon said
cargo air bag as a result of said plurality of paper plies
being folded over upon themselves along one side portion of
said plurality of paper plies; means for closing end portions
of said plurality of paper plies so as to define a second
20 closed end edge portion upon said cargo air bag which coope-
rates with said first closed side edge portion of said cargo
air bag in defining a corner region of said cargo air bag;
and an inflation valve assembly comprising a flange portion
sealed to said inflatable bladder, and an externally threaded
25 tubular body member projecting outwardly through said aper-
tures defined within said inflatable bladder and said plural-
ity of paper plies so as to be fluidically connectible to a
source of pressurized air, said inflation valve assembly be-
ing disposed within said corner region of said cargo air bag
30 such that said inflation valve assembly is partially circum-
scribed upon two sides thereof by said first closed side and

second closed end edge portions of said cargo air bag, the improvement comprising:

connection means for connecting together said plurality of paper plies within the vicinity of said inflation valve assembly and for cooperating with said first closed side and second closed end edge portions of said cargo air bag for additionally circumscribing said inflation valve assembly such that portions of said plurality of paper plies, interposed between said inflation valve assembly and said first closed side and second closed end edge portions of said cargo air bag, and between said inflation valve assembly and said connection means, are maintained in a substantially flattened state so as to not to engage threaded portions of said externally threaded tubular body member of said inflation valve assembly and thereby not interfere with the threaded engagement of a closure cap upon said externally threaded tubular body member of said inflation valve assembly.

20

10. The cargo air bag as set forth in Claim 9, wherein:

said means for closing end portions of said plurality of paper plies comprises fabric means for covering said end portions of said plurality of paper plies, and stitching for sewing said fabric means onto said end portions of said plurality of paper plies.

30

11. The cargo air bag as set forth in Claim 9, wherein:

said connection means comprises a plurality of adhesive strips.

5

12. The cargo air bag as set forth in Claim 11, wherein:

 said plurality of adhesive strips comprises a pair of adhesive strips.

10

13. The cargo air bag as set forth in Claim 12, wherein:

 said pair of adhesive strips extend inwardly from said first closed side and second closed end edge portions of said cargo air bag so as to intersect each other and form a corner region disposed diametrically opposite said corner region of said cargo air bag as defined by the intersection of said first closed side and second closed end edge portions of said cargo air bag.

15
20

14. The cargo air bag as set forth in Claim 13, wherein:

 said pair of adhesive strips are disposed perpendicular to each other such that a first one of said pair of adhesive strips is disposed parallel to said first closed side edge portion of said cargo air bag while a second one of said pair of adhesive strips is disposed parallel to said second closed end edge portion of said cargo air bag.

25
30

15. The cargo air bag as set forth in Claim 12, wherein:
said pair of adhesive strips are disposed within
the immediate vicinity of said flange portion of said infla-
tion valve assembly.

5

16. The cargo air bag as set forth in Claim 12, wherein:
said pair of adhesive strips, together with said
10 first closed side and second closed end edge portions of said
cargo air bag, are disposed upon four sides of said inflation
valve assembly so as to define a substantially square-shaped
closure pattern surrounding said inflation valve assembly.

15

17. A method of fabricating a cargo air bag, such that por-
tions of the plurality of paper plies disposed within the vi-
cinity of its inflation valve assembly will not interfere
20 with the threaded engagement of a closure cap upon the infla-
tion valve assembly, comprising the steps of:

enveloping an inflatable bladder, having an aper-
ture defined therein, within a plurality of paper plies, also
having a plurality of apertures respectively defined there-
25 within, such that said inflatable bladder is disposed intern-
ally within said plurality of paper plies;

folding said plurality of paper plies upon them-
selves along one side portion of said plurality of paper
plies so as to form a first closed side edge portion upon
30 said cargo air bag;

closing end portions of said plurality of paper

plies so as to define a second closed end edge portion upon said cargo air bag which cooperates with said first closed side edge portion of said cargo air bag in defining a corner region of said cargo air bag;

5 installing an inflation valve assembly, comprising a flange portion and an externally threaded tubular body member, within said cargo air bag such that said flange portion of said inflation valve assembly is sealed to said inflatable bladder while said externally threaded tubular body member
10 projects outwardly through said apertures defined within said inflatable bladder and said plurality of paper plies so as to be fluidically connectible to a source of pressurized air, and wherein said inflation valve assembly is disposed within said corner region of said cargo air bag such that said inflation valve assembly is partially circumscribed upon two sides thereof by said first closed side and second closed end edge portions of said cargo air bag; and

15 connecting together said plurality of paper plies by means disposed within the vicinity of said inflation valve assembly in such a manner as to cooperate with said first closed side and second closed end edge portions of said cargo air bag so as to additionally circumscribe said inflation valve assembly such that portions of said plurality of paper plies, interposed between said inflation valve assembly and
20 said first closed side and second closed end edge portions of said cargo air bag, and between said inflation valve assembly and said connection means, are maintained in a substantially flattened state so as to not to engage threaded portions of said externally threaded tubular body member of said inflation valve assembly and thereby not interfere with the
25 threaded engagement of a closure cap upon said externally

threaded tubular body member of said inflation valve assembly.

5

18. The method as set forth in Claim 17, further comprising the steps of:

closing said end portions of said plurality of paper plies by using fabric for covering said end portions of
10 said plurality of paper plies; and

stitching said fabric means onto said end portions of said plurality of paper plies.

15

19. The method as set forth in Claim 17, further comprising the step of:

forming said connection means as a plurality of adhesive strips.

20

20. The method as set forth in Claim 19, further comprising the steps of:

25 forming said plurality of adhesive strips as a pair of adhesive strips.

30

21. The method as set forth in Claim 20, further comprising the step of:

forming said pair of adhesive strips so as to extend inwardly from said first closed side and second closed end edge portions of said cargo air bag and thereby intersect each other and form a corner region disposed diametrically
5 opposite said corner region of said cargo air bag as defined by the intersection of said first closed side and second closed end edge portions of said cargo air bag.

10

22. The method as set forth in Claim 21, further comprising the step of:

disposing said pair of adhesive strips perpendicular to each other such that a first one of said pair of adhesive strips is disposed parallel to said first closed side edge portion of said cargo air bag while a second one of said pair of adhesive strips is disposed parallel to said second closed end edge portion of said cargo air bag.
15

20

23. The method as set forth in Claim 20, further comprising the step of:

disposing said pair of adhesive strips within the
25 immediate vicinity of said flange portion of said inflation valve assembly.

30 24. The method as set forth in Claim 20, further comprising the step of:

disposing said pair of adhesive strips, together
with said first closed side and second closed end edge por-
tions of said cargo air bag, upon four sides of said infla-
tion valve assembly so as to define a substantially square-
5 shaped closure pattern which surrounds said inflation valve
assembly.

10

15

20

25

30